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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/775,106

02/01/2001

Gerard A. Mourou

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EXAMINER

EVANS, GEOFFREY S

ART UNIT

PAPER NUMBER

3742

NOTIFICATION DATE

DELIVERY MODE

01/13/2012

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mgbdoCKET@marshallip.com

Office Action Summary	Application No. 09/775,106	Applicant(s) MOUROU ET AL.	
	Examiner GEOFFREY S. EVANS	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 46-50,52-54,56-66 and 68-118 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 46-50,52-54,56-66 and 68-118 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This office action is in response to Applicant's response of 20 October 2011.
2. Since a Reexam Certificate has been issued, Applicant must submit an amendment based on the results of the reexam proceeding. (See MPEP1449.01 (B)(1)). Respectfully suggest an amendment that states:: "Please delete all claims in the prosecution and enter the following set of claims:" Present claims 1-64 as they now exist in the reexamined patent (except claim 6, which as cancelled in the reissue, should be presented in strike-through). This is because they relate back by virtue of the reexam certificate. They should be presented without any underlining and bracketing in their text (as if it were done via a certificate of correction). The claims 1-64 should be shown in brackets, except claim 6, which is presented in strike-through, due to their cancellation. The current claims 46-50,52-54,56-66 and 68-118 should be presented as claims 65-133. In the remarks, applicant should state: "Please add claims 1-64, as cancelled (as reflected by their enclosure in brackets) and please enter claims 65-133."
3. Claims 46-50,52-54,56-66, and 68-118 are rejected under 35 U.S.C. 251 as being broadened in a reissue application. Regarding claim 46, it recites laser ablating or changing properties of an opaque or transparent material but does not require that the characteristic pulse with causes a breakdown by itself as recited in the independent claims of the Reexamination. Similarly all of the other independent claims in this application do not recite the "by itself" language found in the independent claims of the RE37,585F1. Please note that a reexamination certificate US RE37,585 F1 was issued on March 6,2007. Please note that under MPEP Section 1449.01 (B)(3) states that

generally, further prosecution will be limited to claims narrower than those claims canceled by the reexamination certificate. Any claims added thereafter, which are equal in scope to claims canceled by the reexamination certificate, or are broader than the scope of the claims canceled by the reexamination certificate, will generally be deemed as surrendered based on the patent owner's failure to prosecute claims of equal scope, and to present claims of broader scope in the reexamination proceeding. The two exceptions to this rule (a) The broader claims in the reissue application can be patentable, despite the fact that the claims in the reexamination are not; and (b) The broader claims in the reissue application could not have been presented in the reexamination proceeding are not applicable.

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 81-105 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 46 of copending Application No. 09/775,069 in view of Stern et al. in the article "Corneal Ablation by Nanosecond, Picosecond, and Femtosecond Lasers at 532 nm and 625 nm and Lai in U.S. Patent No. 5,984,916. Claim 46 of 09/775,069 discloses laser ablation of a cornea (which is considered to be either transparent) at 532 nm and 625 nm (see figure 2) and further that the cornea is transparent at wavelengths that are visible and infrared. Stern et al. teaches laser ablation of a cornea at 532 nm and 625 nm (see figure 2) and further that the cornea is transparent at wavelengths that are visible and near-infrared (see page 587, column 2, lines 6-9), and a change in slope to a slowly varying threshold value at a predetermined pulse width (see figures 1 and 2). Stern further teaches as shown in figure 2 using a 1 picosecond (i.e. 1000 femtoseconds) laser beam with a

Art Unit: 3742

fluence threshold of about 10 microjoules and further on page 588, column 1, lines 15-19 using a pulse energy approximately ten times the threshold, and spot diameter of approximately 25 microns (see page 587, column 3, lines 36-38). This results in a fluence level of approximately 20.4 Joules/cm². Stern et al. also teaches a pulse energy from 0.8 microjoules to 3.1 millijoules (see page 588, column 1, lines 19-21) that is within the range recited in claim 103. Stern et al. further teaches optical breakdown without adversely effecting peripheral areas adjacent to the spot, and a repetition rate of 8,000 pulses per second (see figure 2), which is within the range recited in claim 104. Lai teaches scanning the laser beam beneath the surface of the cornea (see figure 9A) to remove tissue. It would have been obvious to adapt claim 46 of copending application No. 09/775,069 in view of Stern et al. and Lai to provide this to accurately laser cut a cornea to remove tissue.

This is a provisional obviousness-type double patenting rejection.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 3742

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 81-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stern et al. in the article "Corneal Ablation by Nanosecond, Picosecond, and Femtosecond Lasers at 532 nm and 625 nm" in view of Lai in U.S. Patent No. 5,984,916. Stern et al. disclose laser induced breakdown (LIB, see page 591, column 1, line 25) of a biologic material (a cornea) with a log-log relationship between fluence threshold at which breakdown occurs versus laser pulse width (see page 588, column 3, line 29), generating a laser pulse of approximately 1 picosecond (see figure 2) with an ablation threshold of 10 microjoules for accurate machining. Stern further discloses on page 588, column 1, lines 15-19 using pulse energy as high as ten times the ablation threshold which for a pulse duration of 1 picosecond is 100 microjoules. The fluence level is determined by the joules per unit area. Stern discloses on page 587, column 3, and lines 36-38 that the spot diameter is about 25 micrometers. The area of a circle is approximately $3.14r^2$, where 3.14 is an approximation of the Greek letter pi and r is the radius of a circle. (The Greek letter pi equals the circumference of a circle divided by the diameter of a circle). Since the diameter is about 25 microns the radius is 12.5 microns. Therefore the fluence level is $100 \times 10^{-6} \text{ Joules} / (12.5 \times 10^{-6} \text{ meters})^2 (3.14) = 1 \times 10^{-4} \text{ Joules} / 3.14 (0.00125) (0.00125) \text{ cm}^2 = \text{approximately } 20.4 \text{ J/cm}^2$, which is greater than 5 J/cm^2 . Stern in page 587, column 2, and lines 6-8 discloses that visible and near - infrared lasers can also be used for corneal ablation, even though at these wavelengths

Art Unit: 3742

the cornea is transparent. Since Stern discloses using a laser beam with a wavelength of 625 nm (see page 587, column 3, line 7) at that wavelength the cornea must be transparent. Lai in figure 9A (column 13, lines 20-25) teaches scanning a laser beam beneath the surface of a cornea to remove tissue. It would have been obvious to adapt Stern et al. in view of Lai to provide this to remove tissue from the cornea. Regarding claims 82,87,92 and 97, one picosecond is within the range of 10 femtoseconds to 10 picoseconds. Regarding claims 83,88,93 and 98, 100 microjoules is within the range of 1 picojoule to 1 joule. Regarding claims 84,89,94 and 99, the repetition rates disclosed in figure 2 on page 588 of Stern are all within the range of one pulse per second to 100 million pulses per second. Regarding claims 85,90,95 and 100, Stern's wavelength of 625 nm is within the range of 300 nm to 700 nm.

9. Claims 106/81, 106/86,106/91,106/96 and 106/101, and 114-118 would be allowable over the prior art of record but are rejected on 35 USC 251 above in this office action.

10. Claims 46-50,52-54,56-66, 68-80 and 113 are allowable over the prior art of record but are rejected on 35 USC 251.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEOFFREY S. EVANS whose telephone number is (571)272-1174. The examiner can normally be reached on Mon-Fri 7:30AM to 4:00 PM (flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GEOFFREY S EVANS/
Primary Examiner, Art Unit 3742